

**WHAT IS CLAIMED IS:**

1. An exhaust gas purifying apparatus for purifying exhaust gas by bringing the exhaust gas into contact with liquid catalyst and solid catalyst, comprising an apparatus body having a liquid reservoir chamber where the liquid catalyst is reserved, a solid catalyst chamber where the solid catalyst is arranged and a cooling mechanism for cooling the liquid catalyst, wherein said cooling mechanism controls a temperature of the liquid catalyst so that up-and-down shift of a liquid level of the liquid catalyst in the liquid reservoir chamber is prevented as much as possible.

2. An exhaust gas purifying apparatus for purifying exhaust gas by bringing the exhaust gas into contact with liquid catalyst and solid catalyst, comprising an apparatus body having a liquid reservoir chamber where the liquid catalyst is reserved, a solid catalyst chamber where the solid catalyst is arranged and a cooling mechanism for maintaining the liquid catalyst in the liquid reservoir chamber to a temperature not higher than 50°C.

3. The exhaust gas purifying apparatus according to claim 1, wherein said cooling mechanism is adapted to keep the liquid catalyst in the liquid reservoir chamber in the range of 40 to 50°C as much as possible when the exhaust gas passes through the liquid reservoir chamber.

4. The exhaust gas purifying apparatus according to claim 2, wherein said cooling mechanism is adapted to keep the liquid catalyst in the liquid reservoir chamber in the range of 40 to 50°C as much as possible when the exhaust gas passes through the liquid reservoir chamber.

5. The exhaust gas purifying apparatus according to any one of claims 1 to 4, wherein a cooler using at least one of a heat pipe, a fin or a cooling medium is used as the cooling mechanism.

6. The exhaust gas purifying apparatus according to any one of claims 1 to 4, wherein a cooling device that exhibits a cooling effect by a heat pipe and electric supply is used as the cooling mechanism.

7. The exhaust gas purifying apparatus according to any one of claims 1 to 4, wherein a solid catalyst chamber having such a structure that a plurality of partial chambers are formed together, a solid catalyst plate is provided in each partial chamber, and the exhaust gas passes through each partial chamber in order and is in contact with the solid catalyst plate of each partial chamber is used as said solid catalyst chamber.

8. The exhaust gas purifying apparatus according to claim 5, wherein a solid catalyst

chamber having such a structure that a plurality of partial chambers are formed together, a solid catalyst plate is provided in each partial chamber, and the exhaust gas passes through each partial chamber in order and is in contact with the solid catalyst plate of each partial chamber is used as said solid catalyst chamber.

9. The exhaust gas purifying apparatus according to claim 6, wherein a solid catalyst chamber having such a structure that a plurality of partial chambers are formed together, a solid catalyst plate is provided in each partial chamber, and the exhaust gas passes through each partial chamber in order and is in contact with the solid catalyst plate of each partial chamber is used as said solid catalyst chamber.

10. The exhaust gas purifying apparatus according to claim 7, wherein at least two solid catalyst plates are provided in each partial chamber.

11. The exhaust gas purifying apparatus according to claim 8, wherein at least two solid catalyst plates are provided in each partial chamber.

12. The exhaust gas purifying apparatus according to claim 9, wherein at least two solid catalyst plates are provided in each partial chamber.

13. An exhaust gas purifying apparatus for purifying exhaust gas by bringing the exhaust gas into contact with liquid catalyst and solid catalyst, comprising an apparatus body having a liquid reservoir chamber where the liquid catalyst is reserved and a solid catalyst chamber where the solid catalyst is arranged, wherein said solid catalyst chamber is composed of a plurality of partial chambers together, at least two solid catalyst plates are provided in each partial chamber, and the exhaust gas pass through each partial chamber in order and is in contact with the solid catalyst plates of each partial chamber.

14. The exhaust gas purifying apparatus according to any one of claims 1 to 4, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

15. The exhaust gas purifying apparatus according to claim 5, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

16. The exhaust gas purifying apparatus according to claim 6, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

17. The exhaust gas purifying apparatus according to claim 7, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

18. The exhaust gas purifying apparatus according to claim 8, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

19. The exhaust gas purifying apparatus according to claim 9, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

20. The exhaust gas purifying apparatus according to claim 10, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

21. The exhaust gas purifying apparatus according to claim 11, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

22. The exhaust gas purifying apparatus according to claim 12, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

23. The exhaust gas purifying apparatus according to claim 13, wherein an introduction portion for introducing the exhaust gas to the liquid catalyst, and an atomizing mechanism for

atomizing the exhaust gas introduced into the liquid reservoir chamber from the introduction portion are provided in the liquid reservoir chamber.

24. The exhaust gas purifying apparatus according to claim 14, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

25. The exhaust gas purifying apparatus according to claim 15, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

26. The exhaust gas purifying apparatus according to claim 16, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

27. The exhaust gas purifying apparatus according to claim 17, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

28. The exhaust gas purifying apparatus according to claim 18, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

29. The exhaust gas purifying apparatus according to claim 19, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

30. The exhaust gas purifying apparatus according to claim 20, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

31. The exhaust gas purifying apparatus according to claim 21, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

32. The exhaust gas purifying apparatus according to claim 22, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.

33. The exhaust gas purifying apparatus according to claim 23, wherein an atomizing mechanism where the exhaust gas passing through a member provided with a plurality of small holes juxtaposed in an up-and-down direction of the liquid reservoir chamber and atomized by the small holes is used as said atomizing mechanism.